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Kunzler & McKenzie 8 EAST BROADWAY SUITE 600 SALT LAKE CITY, UT 84111			EXAMINER JOHNSON, CARLTON	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/686,878

Applicant(s)

HSU ET AL.

Examiner

Carlton V. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 2,9 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-22 and 24-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is responding to application papers filed on **5-11-2007**.
2. Claims **1 - 30** are pending. Claims **1, 3, 5, 10, 13, 17 - 19, 24 - 26, 28, 30** have been amended. Claims **2, 9, 23** have been cancelled. Claims **1, 10, 13, 17, 24, 28** are independent.

### ***Response to Remarks***

3. The following is in response to papers filed on 6-1-2007.
  - 3.1 Applicant argues, *"reboot the processor with a data transfer kernel under an abnormal operating condition that threatens a loss of data in the volatile memory"*. (see *Remarks Pages 8*)

Applicant's principal argument is the capability to reboot a computer system and place a special data save kernel (core executable) into execution at reboot completion and save the contents of volatile memory. This particular sequence of events raises an enablement issue and requires a USC 112 rejection. Applicant uses the term "reboot" multiple times within the specification with no definition of the term. Therefore, the generic definition of this particular term, "reboot", will be utilized.

The reboot of a computer system can be performed utilizing a hard boot (with power-off and power-on sequence) or a soft boot (with no power-off and power-on sequence). Applicant's specification does not disclose what type of reboot is implemented as part of the claimed invention. After a review of definitions for the term

"reboot" it was found that a power-off and power-on sequence in most situations can be part of a reboot procedure. If a reboot procedure includes a power-off and power-on sequence, then volatile memory is erased and there is no recoverable information for the data save kernel (executable) to save. Rebooting the processor clears the currently executing instruction sequence from the designated executing program (application executing under the control of an operational (executing) OS). And, the reboot procedure reloads a new instruction sequence (i.e. the data save kernel) for the processor to initiate executing instructions.

In addition, as part of the reboot procedure, volatile memory is erased when power is no longer supplied (during a power-off power-on sequence, if one is completed as part of the reboot procedure). This leads to the enablement problem with Applicant's invention. The invention cannot be implemented as claimed. If applicant feels that there is no enablement problem, please indicate the citations that prove a power-off and power-on sequence is definitely not completed as part of the reboot procedure for confirmation.

Prior art references discloses the save of volatile memory in the event of an abnormal condition (i.e. power failure, system crash). Prior art references discloses the reboot of a computer system after an abnormal condition (system crash).

#### Reboot Definitions:

With power-off and power-on sequence:

(<http://www.thefreedictionary.com/reboot>)

(<http://www.webopedia.com/TERM/R/reboot.html>)

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(<http://www.allwords.com/word-reboot.html>)

([http://searchsmb.techtarget.com/sDefinition/0,,sid44\\_gci947403,00.html](http://searchsmb.techtarget.com/sDefinition/0,,sid44_gci947403,00.html))

(<http://www.yourdictionary.com/ahd/r/r0076750.html>)

Without no power-off and power-on sequence:

(<http://www.scala.com/definition/reboot.html>)

The majority or almost all definitions of the term “reboot” indicate a power-off and power-on sequence as a possible step in the reboot procedure. The general consensus appears to be that a reboot can involve a power-off and power-on sequence. This sequence is not excluded by the specification and the original claims. Therefore, this disclosure renders the term “reboot” in the specification indefinite. If applicant feels that there is no indefinite problem with term “reboot”, please indicate the citations that state a definition for the term “reboot” for confirmation.

3.2 The examiner has considered the applicant’s remarks concerning a data saving system and method that rapidly and deterministically saves data of a computer system. A boot control module detects a condition requiring a data saving operation, reboots the computer, and loads a data transfer kernel that supports a set of processes exclusively dedicated to saving data. Applicant’s arguments have thus been fully analyzed and considered but they are not persuasive.

After an additional analysis of the applicant’s invention, remarks, and a search of the available prior art, it was determined that the current set of prior art consisting of

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**Backman (7,124,322)** and **Neuman (20030217299)** discloses the applicant's invention including disclosures in Remarks dated June 1, 2007.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims **1, 10, 13, 17, 24, 28** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reboot of a computer system can be performed utilizing a hard boot (with a power-off and power-on sequence) or a soft boot (without a power-off and power-on sequence). Applicant's specification does not disclose what type of reboot is implemented for the claimed invention. After a review of definitions for the term "reboot", it was found that a power-off and power-on sequence can be performed as part of a reboot procedure. If a reboot procedure includes a power-off and power-on sequence, then volatile memory is erased and there is no recoverable information for the data save kernel to save for placement onto non-volatile storage.

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6. Claims **1, 10, 13, 17, 24, 28** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The reboot of a computer system can be performed utilizing a hard boot (with a power-off and power-on sequence) or a soft boot (with no power-off and power-on sequence). Applicant's specification or original claims do not disclose what type of reboot or definition of the term reboot implemented for the claimed invention.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims **1, 3 - 7, 10, 11, 13 - 21, 24 - 30** are rejected under 35 U.S.C. 102(e) as being anticipated by **Backman et al.** (US Patent No. **7,124,322**).

**Regarding Claim 1**, Backman discloses an apparatus for rapidly, deterministically transferring data, the apparatus comprising:

- a) a processor configured to process data; (see Backman col. 3, lines 55-58:  
processor)

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- b) a volatile memory configured to store the data; (see Backman col. 3, lines 53-54; col. 4, lines 22-29: RAM/ROM (volatile) memory, hard disk (non-volatile) storage) and
- c) a boot control module configured to boot the processor with a standard operating kernel under a normal operating system and to reboot the processor with a data transfer kernel under an abnormal operating condition that threatens a loss of data in the volatile memory. (see Backman col. 1, lines 53-56; col. 5, lines 64-67: normal operation, data save operation performed; col. 3, lines 12-18; col. 6, lines 30-40: restoration boot for recovery; col. 2, line 56 - col. 3, line 2: data save usage for disaster recovery (abnormal condition))
- d) the data transfer kernel configured to support a data save operation configured to save data in the volatile memory to a storage device. (see Backman col. 4, lines 6-9: imaging process (i.e. data transfer kernel), data saving operation: program specifically for performing data save operation)

**Regarding Claim 3**, Backman discloses the apparatus of claim 1, wherein the data save operation is selected from the group consisting of a storage configuration operation, a transfer process loading operation, a data transfer operation, and a system shutdown operation. (see Backman col. 4, lines 6-9; col. 4, lines 31-36: backup image data (i.e. data save operation, data transfer kernel))

**Regarding Claims 4, 11**, Backman discloses the apparatus of claims 3, 10, wherein the



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data transfer kernel is configured to exclusively support the data save operation. (see Backman col. 4, lines 6-9; col. 4, lines 31-36: imaging process (i.e. data transfer kernel), only function, exclusively support for data save operation)

**Regarding Claim 5**, Backman discloses the apparatus of claim 1, further comprising a memory module comprising data bits for marking data to be saved during the data save operation. (see Backman col. 4, lines 31-36: data designation or data marking (i.e. baseline, application, personal))

**Regarding Claim 6**, Backman discloses the apparatus of claim 5, wherein the standard operating kernel is further configured to mark data to be saved during a data save operation. (see Backman col. 4, lines 31-36: data designation or data marking (i.e. basic, application, personal))

**Regarding Claims 7, 21**, Backman discloses the apparatus of claim 1, wherein the data transfer kernel is configured to configure a storage device for specialized data save operations. (see Backman col. 4, lines 6-9: capability to save; col. 4, lines 14-22: types of data (i.e. baseline, application, personal))

**Regarding Claims 10**, Backman discloses an apparatus for rapidly, deterministically transferring data to a storage device, the apparatus comprising:

- a) a storage device configured to store data; (see Backman col. 4, lines 22-29; col.

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4, lines 31-36: storage device(s))

- b) a data transfer kernel configured to support data saving operations; (see Backman col. 4, lines 6-9: imaging process (i.e. data transfer kernel), data saving operation) and
- c) a computer in communication with the storage device, the computer configured to load the data transfer kernel during a reboot procedure in response to an abnormal operating condition that threatens the loss of data in a volatile memory; the data transfer kernel configured to support a data save operation configured to save data in the volatile memory to the storage device. (see Backman col. 4, lines 22-29; col. 4, lines 31-36: network connected storage, network communications; col. 4, lines 6-9: imaging process (i.e. data transfer kernel), data saving operation)

**Regarding Claim 13**, Backman discloses an apparatus for rapidly, deterministically saving data, the apparatus comprising:

- a) means for saving data in a non-volatile memory; (see Backman col. 4, lines 6-9: save data, imaging process (i.e. data transfer kernel); col. 2, lines 52-55; col. 2, lines 12-13; col. 4, lines 9-13: application, process, software, implementation means: software, implementation means)
- b) means for detecting a data save condition comprising an abnormal operating condition that threatens the loss of data in a volatile memory; (see Backman col. 4, lines 6-9: data save, imaging process; col. 2, lines 52-55; col. 2, lines 12-13;

col. 4, lines 9-13: application, process, software, implementation means; col. 2, line 56 - col. 3, line 2: data save usage for disaster recovery (abnormal condition)) and

- c) means for booting a processor with a data transfer kernel in response to the abnormal operating condition, the data transfer kernel configured to save data to the means for saving data. (see Backman col. 1, lines 53-56; col. 5, lines 64-67: normal operation, data save operation completed; col. 2, lines 52-55; col. 2, lines 12-13; col. 4, lines 9-13: application, process, software, implementation means)

**Regarding Claim 14**, Backman discloses the apparatus of claim 13, further comprising means for configuring the means for saving data for data save operations. (see Backman col. 2, lines 12-13; col. 4, lines 9-13: application, process, software, implementation means; col. 4, lines 6-9: backup or save data (i.e. image data))

**Regarding Claim 15**, Backman discloses the apparatus of claim 13, further comprising means for booting a standard operating kernel for normal operation. (see Backman col. 1, lines 53-56; col. 5, lines 64-67: normal system operation; col. 2, lines 52-55; col. 2, lines 12-13; col. 4, lines 9-13: application, process, software, implementation means)

**Regarding Claims 16, 27, 29**, Backman discloses the apparatus, system, computer readable storage medium of claims 13, 24, 28, wherein comprising marking data to be saved during a data save operation. (see Backman col. 4, lines 31-36: data designation

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or data marking (i.e. baseline, application, personal))

**Regarding Claim 17**, Backman discloses a system for rapidly, deterministically saving data to a storage device, the system comprising:

- a) a processor configured to process data; (see Backman col. 3, lines 55-58: processor for data processing)
- b) a memory configured to provide volatile storage for the data; (see Backman col. 3, lines 55-58: volatile storage (i.e. RAM, ROM))
- c) a storage device configured to provide non-volatile storage for the data; (see Backman col. 4, lines 22-29: non-volatile storage (i.e. hard disk)) and
- d) a boot control module configured to boot the processor module with a standard operating kernel under a normal operating condition and to reboot the processor with a data transfer kernel under an abnormal operating condition that threatens the loss of data in the memory (see Backman col. 2, line 56 - col. 3, line 2: data save usage for disaster recovery (abnormal condition); the data transfer kernel configured to support a data save operation configured to save data in the memory to the storage device. (see Backman col. 1, lines 53-56; col. 5, lines 64-67: condition one, normal operation; col. 3, lines 12-18; col. 6, lines 30-40: second condition, restoration operation; col. 4, lines 6-9: imaging process (i.e. data transfer kernel), data saving operation)

**Regarding Claim 18**, Backman discloses the system of claim 17, wherein the standard

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operating kernel is configured to mark data in the memory to be saved by the data transfer kernel during a data save operation. (see Backman col. 4, lines 31-36: specific data types (i.e. mark data) for saving (i.e. basic, application, personal))

**Regarding Claims 19, 30**, Backman discloses the system, computer readable storage medium of claims 17, 28, wherein the data transfer kernel is configured to exclusively supports devices operations and processes required to save data. (see Backman col. 4, lines 6-9; col. 4, lines 31-36: imaging process (i.e. data transfer kernel), only function, exclusively support for data save operation)

**Regarding Claim 20**, Backman discloses the apparatus of claim 1, wherein the data transfer kernel is configured to support a data save operation. (see Backman col. 4, lines 6-9: imaging process (i.e. data transfer kernel) to backup system data (i.e. data save operation))

**Regarding Claim 24**, Backman discloses a method for rapidly, deterministically saving data, the method comprising:

- a) detecting a data save condition comprising that threatens the loss of data in a volatile memory; (see Backman col. 4, lines 6-9: save data, imaging process) and
- b) rebooting a processor module with a data transfer kernel configured to support a data save operation configured to save the data in the volatile memory to a non-volatile storage device. (see Backman col. 6, lines 30-40: setup/initiate

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restoration environment (i.e. reboot), data save information; col. 4, lines 6-9:

imaging process (i.e. data transfer kernel), data saving operation)

**Regarding Claim 25**, Backman discloses the method of claim 24, further comprising exclusively supporting devices, operations, and conducting processes required to save data to a storage device. (see Backman col. 4, lines 6-9; col. 4, lines 22-29; col. 4, lines 31-36: save data to storage device (i.e. image server, storage))

**Regarding Claim 26**, Backman discloses the method of claim 24, further comprising configuring the non-volatile storage device to receive data. (see Backman col. 4, lines 14-17: disk partition (i.e. configuring storage device))

**Regarding Claim 28**, Backman discloses a computer readable storage medium comprising computer readable program code for rapidly, deterministically saving data, the program code configured to:

- a) boot a processor module with a data transfer kernel configured to support a data save operation and in response to an abnormal operating condition that threatens the loss of data in a volatile memory module comprising volatile memory; (see Backman col. 6, lines 30-40: load processor with restoring environment (i.e. data transfer kernel); col. 3, lines 55-58: processor; col. 2, line 56 - col. 3, line 2: data save usage for disaster recovery (abnormal condition))  
and

- b) transfer the data with the data save operation from the memory module to a non-volatile storage device. (see Backman col. 4, lines 6-9; col. 4, lines 31-36: backup data (i.e. image data) from memory module to image server (i.e. storage device); col. 4, lines 6-9: imaging process (i.e. data transfer kernel), data saving operation)

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims **8, 12, 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Backman** in view of **Neuman et al.** (US PG PUB No. **20030217299**).

**Regarding Claims 8, 12, 22**, Backman discloses the apparatus of claim 1, wherein the data transfer kernel. (see Backman col. 2, lines 12-13: imaging/restoration process (i.e. data transfer kernel)) Backman does not specifically disclose wherein configured to conduct a power down procedure. However, Neuman discloses wherein configured to conduct a power down procedure. (see Neuman paragraph [0030], lines 1-5: power state management; paragraph [0003], lines 6-13; paragraph [0055], lines 1-7; paragraph [0057], lines 1-8: power down state (i.e. power down procedure))

It would have been obvious to one of ordinary skill in the art to modify Backman as

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taught by Neuman to enable a power down procedure. One of ordinary skill in the art would have been motivated to employ the teachings of Neuman in order to enable a reduction in the amount of data required to save system context for a recovery operation, and to enable a relatively fast wake-up procedure from a sleep state. (see Neuman paragraph [0015], lines 1-4: "*... Advantageously, embodiments of the present invention enable a power management system to be realised in which the amount of data that needs to be saved to preserve a system context is reduced. ...*"; paragraph [0017], lines 1-3: "*... Furthermore, embodiments allow, in the absence of a power failure, a relatively fast wake-up time from a sleep state. ...*")

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later



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than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlton V. Johnson whose telephone number is 571-270-1032. The examiner can normally be reached on Monday thru Friday , 8:00 - 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*C.G.*  
CVJ  
July 23, 2007

NASSER MOAZZAMI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

*[Signature]*  
8/2/07

Carlton V. Johnson  
Examiner  
Art Unit 2136